

# Air operated pumps

Diaphragm, Piston Ball and Extrusion, Accessories



Expert series pumps  
– increased flow and  
reduced air consumption

Pumps with ATEX  
certification

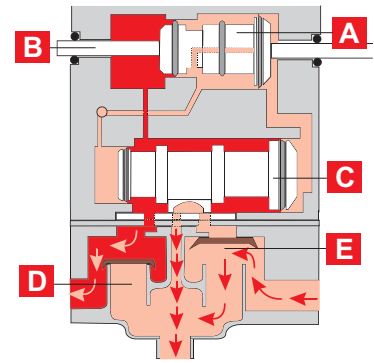


# Air operated diaphragm pumps

## How do they work? Phase one:

Diaphragm pushes actuator pin (B) mechanically moving the Simul-Shift Valve (A) to the right. Fast trip-over of "SimulShift™" Valve assures ultra-positive, reliable shift signal that avoids stall-out and increases delivery with less pulsation and superior laminar material flow.

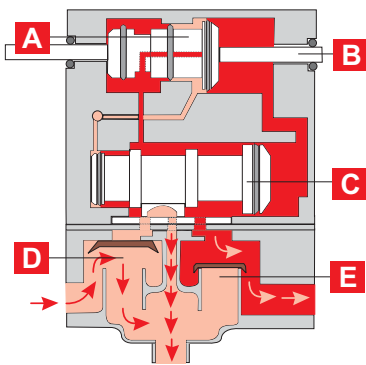
- 1) Compressed Air (red) pneumatically holds the Simul-Shift Valve (A) and the Major Air Valve (C) in position. Large ends of the Simul-Shift Valve (A) and Major Air Valve (C) are vented to exhaust. "Unbalanced" Major Air Valve eliminates valve locking and pump stall-out even under low air inlet pressures. No magnets, springs, re-set buttons, or other secondary actuators to insure pump shifting - only air. No added lubrication required. "Wiping" action of the seals makes it extremely forgiving of contaminated compressed air supplies.
- 2) The left Quick Dump Check (brown) (D) blocks the exhaust port. Compressed air flows around it into the left diaphragm chamber.
- 3) The right Quick Dump Check (E) lifts to open the exhaust port and allows exhaust air (pink) from the right diaphragm chamber to flow into the expansion chamber, keeping this cold, wet exhaust air (pink) away from the Major Air Valve (C).
- 4) Both diaphragms shift to the left now.



## Phase two:

Diaphragm pushes Actuator Pin (B) and Simul-Shift Valve (A) to the left.


- 1) Compressed air flows to the large side of the Simul-Shift Valve (A), pneumatically holding the valve in the position shown.
- 2) Compressed air also flows to the large end of the Major Air Valve (C), pneumatically shifting it to the left. Simplified Major Air Valve Block in all EXP pumps is easy to access, simple to service and lube free.
- 3) Shift of the Major Air Valve (C) results in an air pressure differential between the Quick Dump Checks (D) & (E) - causing them to shift position.
- 4) The right Quick Dump Check (E) blocks the exhaust port. Compressed air (red) flows around the Quick Dump Check into the right diaphragm chamber.
- 5) The left Quick Dump Check (D) lifts to open the exhaust port and allows exhaust air (pink) from the left diaphragm chamber to flow into the expansion chamber, keeping this cold, wet exhaust air (pink) away from the Major Air Valve (C). This helps to prevent pump ice-up. No need for space heaters or other ice-preventive contraptions.
- 6) Both diaphragms shift to the right now.



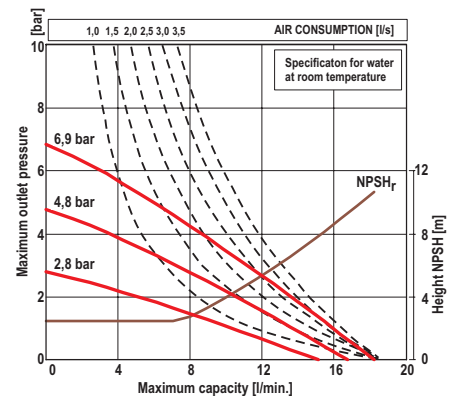
## PD02P-xxS-xTx

Best Selling Models: PD02P-APS-PTA, PD02P-APS-PTT, PD02P-ADS-DTT



- Size**  
02 - NPT  
1/4" inlet / 3/8" outlet
- Air motor**  
P polypropylene
- Hardware**  
S st. steel
- Wet end (pump weight)**  
D groundable acetal (2,10 kg)   
P polypropylene (1,85 kg)  
K kynar® PVDF (2,20 kg)
- Valve / diaphragms**  
TA teflon / santoprene®  
TG teflon / nitril  
TT teflon / teflon®
- Seats**  
D acetal  
P polypropylene  
K kynar®


Max. 17,4 l/min. at 6,9 bar (0,053 l/cycle)  
Suspended solids max. dia.: for clean fluid only  
1/4" / 3/8" NPT (or 1/2" / 1/2" NPT) - fluid outlet/inlet,  
1/4" NPT - air inlet



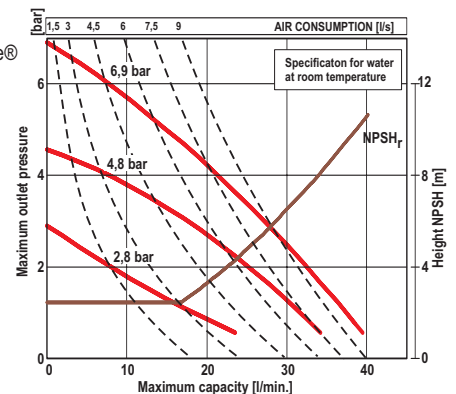
## PD03P-xxS-xxx

Best Selling Models: PD03P-BPS-PAA, PD03P-BPS-PTT, PD03P-BDS-DTT, PD03P-BKS-KTT



- Size**  
03 - inlet / outlet 3/8"
- Air motor**  
P polypropylene
- Hardware**  
S st. steel
- Wet end (pump weight)**  
P,R polypropylene (1,6 kg)  
D,E groundable acetal (1,9 kg)   
K,L kynar® PVDF (2,1 kg)  
(R,E,L multiple port manifold)
- Balls / diaphragms**  
AA santoprene/santoprene®  
CC hytel/hytel®  
ST st. steel/teflon®  
TT teflon / teflon®  
VV viton / viton®
- Valve seats**  
P polypropylene  
D acetal  
K kynar® PVDF  
S st. steel

Max. 40 l/min. at 6,9 bar (0,083 l/cycle)  
Suspended solids max. dia.: 1,6 mm.  
3/8" / 3/8" thread - fluid outlet/inlet, 1/4" NPT - air inlet.



BSP = British Standard Pipe Thread  
NPSHr = Net Positive Suction Head (required)

NPT = National (US standard) Pipe Thread  
ANSI = US standard applicable for the flange connection  
Pump dimensions and service kits - see page 5. Accessories common for piston and diaphragm pumps - see page 6.

# Air operated diaphragm pumps



## PD05x-xxS-xxx-B

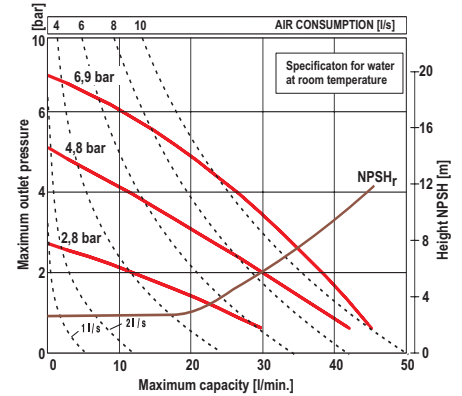
Best Selling Models: PD05R-BAP-AAA-B, PD05R-BAP-FTT-B, PD05R-BSS-STT-B



aluminium pump shown

- Size**  
05 inlet / outlet 1/2"
- Air motor**  
R polypropylene  
A aluminium (+1 kg)
- Inlet/outlet**  
A NPT  
B BSP
- Wet end (pump weight)**  
A aluminium (3,7 kg)  
S st. steel (6,5 kg)
- Hardware**  
S st. steel
- Balls / diaphragms**  
AA santoprene santoprene®  
CC hytrel/hytrel®  
GG nitrile / nitrile  
UU polyurethane/polyurethane  
ST st. steel / teflon®  
TT teflon / teflon®
- Seats**  
F aluminium  
P polypropylene  
S st. steel

Max. 45 l/min. at 6,9 bar (0,15 l/cycle)  
Suspended solids max. dia.: 2,4 mm  
1/2" / 1/2" - fluid outlet/inlet, 1/4"NPT - air inlet



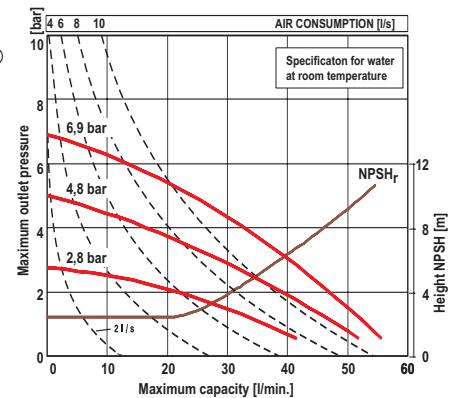
## PD05P-xxS-xxx

Best Selling Models: PD05P-BPS-PAA, PD05P-BPS-PTT, PD05P-BDS-DTT, PD05P-BKS-KTT



- Size**  
05 - inlet / outlet 1/2"
- Air motor**  
P polypropylene
- Inlet / outlet**  
A NPT  
B BSP
- Wet end (pump weight)**  
P,R polypropylene (2,4 kg)  
D,E groundable acetal (2,9 kg)   
K,L kynar® PVDF (3,1 kg) (R,E,L multiple port manifold)
- Hardware**  
S st. steel
- Balls / diaphragms**  
AA santoprene/santoprene®  
CC hytrel/hytrel®  
ST st. steel/teflon®  
TT teflon / teflon®  
VV viton / viton®
- Valve seats**  
P polypropylene  
D acetal  
K kynar® PVDF  
S st. steel

Max. 54 l/min. at 6,9 bar (0,15 l/cycle)  
Suspended solids max. dia.: 2,4 mm  
1/2" / 1/2" - fluid outlet/inlet, 1/4"NPT - air inlet



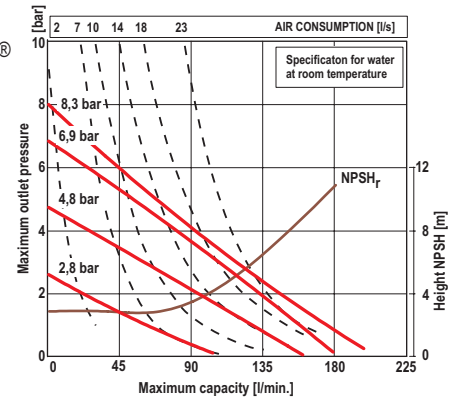
## PD10x-xxx-xxx

Best Selling Models: PD10A-BAP-AAA, PD10A-BAP-FTT, PD10A-BSS-STT



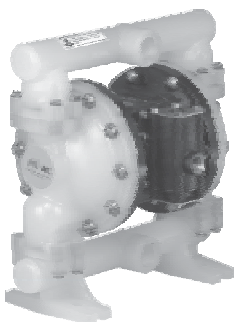
- Air motor**  
A aluminium  
R polypropylene (-2,8kg)  
S st. steel (+3,1 kg)
- Inlet / outlet**  
A 1" NPT  
B 1" BSP
- Wet end (pump weight)**  
A aluminium (11 kg)  
C cast iron (19 kg)  
S st. steel (20 kg)
- Hardware**  
P plated steel  
S st. steel
- Balls / diaphragms**  
AA santoprene / santopr.®  
CC hytrel/hytrel®  
GG nitrile / nitrile  
ST st. steel/teflon®  
TT teflon / teflon®  
VV viton / viton®
- Valve seats**  
A santoprene®  
C hytrel®  
E carbon steel  
F aluminium  
G nitrile  
H hard st. steel  
L hastelloy®  
S st. steel

Max. 198 l/min. at 8,3 bar (0,94 l/cycle)  
Suspended solids max. dia.: 3,2 mm  
1" / 1" thread - fluid outlet/inlet, 1/4"NPT - air inlet



## PD10P-xxS-xxx

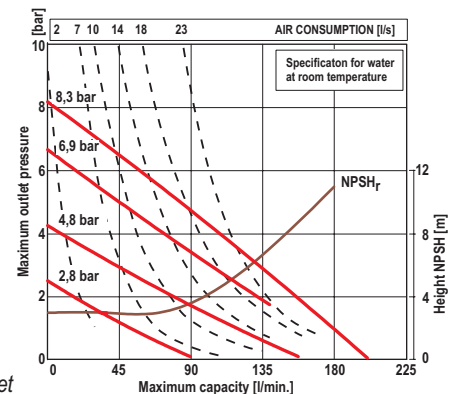
Best Selling Models: PD10P-FPS-PAA, PD10P-FPS-PTT, PD10P-FKS-KTT



also flanged (side or center port)

- Air motor**  
P polypropylene  
E conductive PP
- Inlet / outlet**  
A NPT thread  
B BSP thread  
F ANSI/DIN side  
Y ANSI/DIN centre
- Wet end (pump weight)**  
P polypropylene (9 kg)  
K kynar® PVDF (12 kg)  
E conductive PP (9 kg)
- Hardware**  
S st. steel
- Balls / diaphragms**  
AA santoprene / santoprene®  
CC hytrel / hytrel®  
GG nitrile / nitrile  
ST st. steel / teflon  
TT teflon / teflon®  
VV viton / viton®
- Valve seats**  
H hard steel 440 P polypropylene  
K kynar® PVDF S st. steel

Max. 200 l/min. at 8,3 bar (0,99 l/cycle)  
Suspended solids max. dia.: 3,2 mm  
1" / 1" thread or ANSI/DIN pipe flange - fluid outlet/inlet, 1/4"NPT - air inlet



BSP = British Standard Pipe Thread

NPT = National (US standard) Pipe Thread

ANSI = US standard applicable for the flange connection

NPSHr = Net Positive Suction Head (required)

Pump dimensions and service kits – see page 5. Accessories common for piston and diaphragm pumps – see page 6.

# Air operated diaphragm pumps



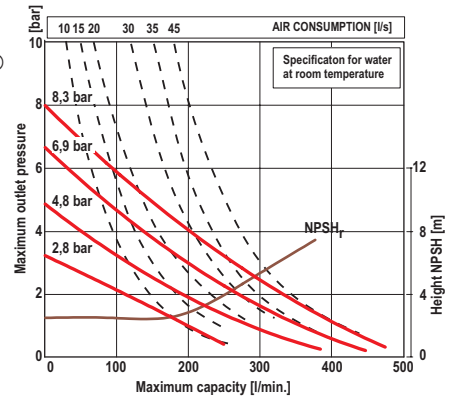
also flanged (center port)

## PD15x-xxx-xxx

Best Selling Models: PD15A-BAP-AAA, PD15A-BAP-FTT, PD15A-BSS-STT

- Air motor**
  - A aluminium
  - R polypropylene (-0,7kg)
  - S st. steel (+7,3 kg)
- Inlet / outlet**
  - A 1,5" NPT
  - B 1,5" BSP
  - Y 1,5" flange
- Wet end (pump weight)**
  - A aluminium (16 kg)
  - C cast iron (34 kg)
  - H hastelloy® (40 kg)
  - S st. steel (28 kg)
- Hardware**
  - P plated steel
  - S st. steel
- Balls / diaphragms**
  - AA santoprene / santopr.®
  - CC hytrel / hytrel®
  - GG nitrile / nitrile
  - ST st. steel/teflon®
  - TT teflon / teflon®
  - VV viton / viton®
- Valve seats**
  - A santoprene®
  - C hytrel®
  - E carbon steel
  - F aluminium
  - G nitrile
  - H hard st. steel
  - L hastelloy®
  - S st. steel

Max. 465 l / min. at 8,3 bar (2,23 l / cycle)  
Suspended solids max. dia.: 6,4 mm  
**1,5" / 1,5" thread or pipe flange - fluid outlet/inlet, 1/2"NPT - air inlet**



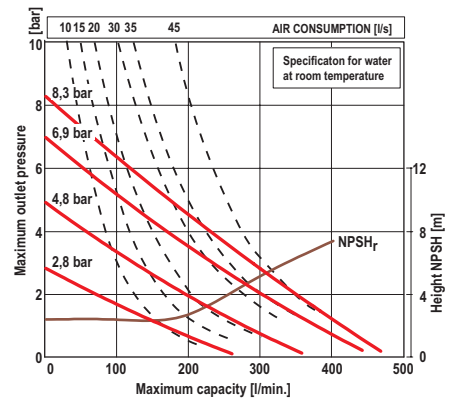
also center port, flanged

## PD15P-xxS-xxx

Best Selling Models: PD15P-FPS-PAA, PD15P-FPS-PTT, PD15P-FKS-KTT

- Air motor**
  - P polypropylene
  - E conductive PP
- Inlet / outlet**
  - 1,5" ANSI/DIN
  - Y centre (Kynar +3kg)
  - F side (Kynar +3kg)
- Wet end (pump weight)**
  - P polypropylene (20 kg)
  - K kynar® PVDF (26 kg)
  - E conductive PP (19 kg)
- Hardware**
  - S st. steel
- Balls / diaphragms**
  - AA santoprene/santoprene®
  - CC hytrel / hytrel®
  - GG nitrile / nitrile
  - ST st. steel / teflon
  - TT teflon / teflon®
  - VV viton / viton®
- Valve seats**
  - H hard steel 440
  - K kynar® PVDF
  - P polypropylene
  - S st. steel

Max. 465 l / min. at 8,3 bar (2,23 l / cycle)  
Suspended solids max. dia.: 6,4 mm  
**1,5" / 1,5" ANSI/DIN pipe flange - fluid outlet/inlet, 1/2"NPT - air inlet**

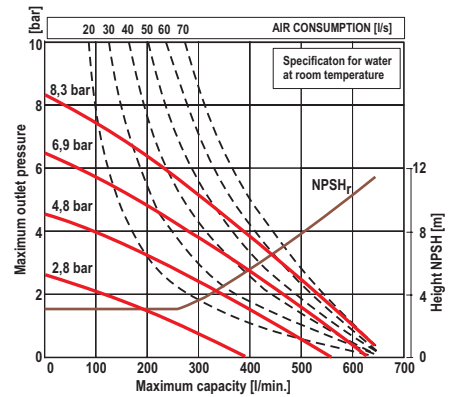


## PD20x-xxx-xxx-B

Best Selling Models: PD20A-BAP-AAA-B, PD20A-BCP-GGG-B, PD20A-BAP-KTT-B, PD20A-BSS-STT-B

- Air motor**
  - A aluminium
  - C cast iron (+15kg)
  - R polypropylene
  - S st. steel (+15kg)
- Inlet / outlet**
  - A 2" NPT
  - B 2" BSP
  - F 2" flange
- Wet end (pump weight)**
  - A aluminium (29 kg)
  - C cast iron (60 kg)
  - H hastelloy® (54 kg)
  - S st. steel (70 kg)
- Hardware**
  - P plated steel
  - S st. steel
- Balls / diaphragms**
  - AA santoprene / santoprene
  - CC hytrel / hytrel®
  - GG, JG nitrile / nitrile
  - ST st. steel / teflon®
  - TT teflon / teflon®
  - VV, LV viton/viton®
- Valve seats**
  - A santoprene®
  - C hytrel®
  - E carbon steel
  - F aluminium
  - G nitrile
  - H hard st. steel
  - K kynar® PVDF
  - L hastelloy®
  - S st. steel

Max. 644 litre / min. at 8,3 bar (5,3 litre / cycle)  
Suspended solids max. dia.: 6,4 mm  
**2" / 2" thread - fluid outlet/inlet, 3/4"NPT air inlet**

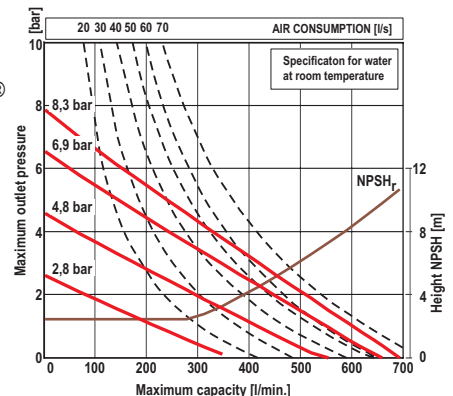


## PD20P-FxS-xxx

Best Selling Models: PD20P-FPS-PAA, PD20P-FPS-PTT, PD20P-FKS-KTT

- Air motor**
  - P polypropylene/vinyl ester
  - E conductive PP
- Inlet / outlet**
  - F 2" flange ANSI/DIN
- Wet end (pump weight)**
  - P polypropylene (39 kg)
  - K kynar® PVDF (50 kg)
  - E conductive PP (39 kg)
- Hardware**
  - S st. steel
- Balls / diaphragms**
  - AA santoprene / santoprene®
  - GG nitrile / nitrile
  - TT teflon / teflon®
  - VV viton / viton®
- Valve seats**
  - P polypropylene
  - K kynar® PVDF

Max. 696 litre / min. at 8,3 bar (5,3 litre / cycle)  
Suspended solids max. dia.: 6,4 mm  
**2" / 2" ANSI/DIN pipe flange - fluid outlet/inlet, 3/4"NPT - air inlet**



BSP = British Standard Pipe Thread  
NPSHr = Net Positive Suction Head (required)

NPT = National (US standard) Pipe Thread  
Pump dimensions and service kits – see page 5. Accessories common for piston and diaphragm pumps – see page 6.

ANSI = US standard applicable for the flange connection

# Air operated diaphragm pumps – Dimensions

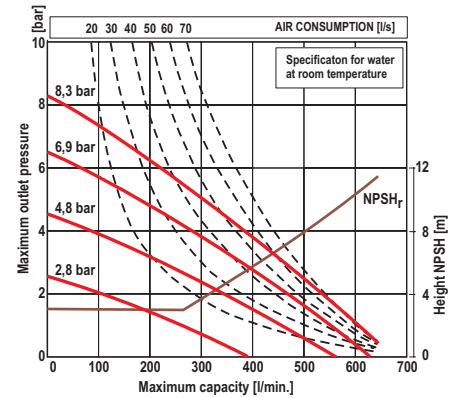


## PF20x-xxx-xxx

Best Selling Models: PF20A-BAP-SAA, PF20A-BAP-SGG, PF20A-BCP-SAA

- Air motor**
  - A aluminium
  - C cast iron (+15kg)
  - S st. steel (+15kg)
- Hardware**
  - P plated steel
  - S st. steel
- Flap / diaphragms**
  - AA santoprene/santoprene®
  - GG nitrile / nitrile
  - UA polyurethane/santoprene®
  - VT viton / teflon®
- Inlet / outlet**
  - A 2" NPT
  - B 2" BSP
- Wet end (pump weight)**
  - A aluminium (34 kg)
  - C cast iron (73 kg)
  - S st. steel (85 kg)
- Valve seats**
  - S st. steel

Max. 644 litre / min. at 8,3 bar (5,3 litre / cycle)  
Suspended solids max. dia.: 50 mm (semi-solid)  
2" / 2" thread - fluid outlet/inlet, 3/4"NPT - air inlet

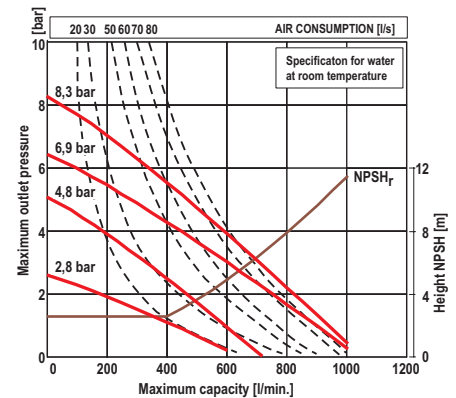


## PD30x-xxx-xxx-C

Best Selling Models: PD30A-BAP-AAA-C, PD30A-BAP-GGG-C, PD30A-BAP-STT-C

- Air motor**
  - A aluminium
  - R polypropylene
  - S st. steel (+18kg)
- Hardware**
  - P plated steel
  - S st. steel
- Balls / diaphragms**
  - AA santoprene / santoprene®
  - CC hytrel / hytrel®
  - GG nitrile / nitrile
  - ST st. steel / teflon®
  - TT teflon / teflon®
  - VV viton / viton®
- Inlet / outlet**
  - A 3" NPT
  - B 3" BSP
- Wet end (pump weight)**
  - A aluminium (51,3 kg)
  - C cast iron (89,4 kg)
  - S st. steel (92 kg)
  - H hastelloy® (92 kg)
- Valve seats**
  - A santoprene®
  - C hytrel®
  - E carbon steel
  - F aluminium
- G nitrile**
- H hard st. steel**
- K kynar® PVDF**
- L hastelloy®**
- S st. steel**

Max. 1041 litre / min. at 8,3 bar (10,6 litre / cycle)  
Suspended solids max. dia.: 9,5 mm  
3" / 3" thread - fluid outlet/inlet, 3/4"NPT - air inlet



## PMxxS-CSS-xxx-x02

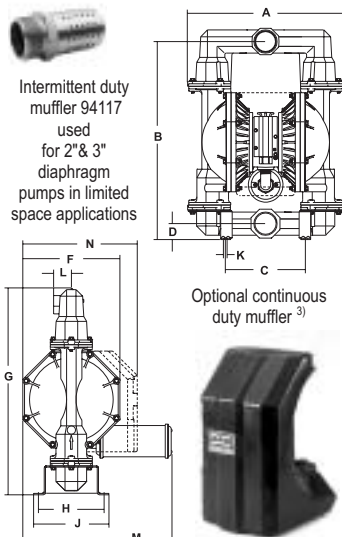
Sanitary pumps – constructed from FDA approved materials (electro-polished stainless steel fluid section, food-grade santoprene or teflon valves/diaphragms).  
Max. capacities at 6,9 bar: 49 l/min. (PM05P), 644 l/min. (PM20), 1041 l/min. (PM30) (do not meet 3-A USDA requirements)



## SBXXX-XXX-X

- Diaphragm**
  - A santoprene®
  - G nitrile
  - T teflon®
- Hardware**
  - S stainless st.
  - P plated steel
- Size**
  - 10 – 1"
  - 20 – 2"
  - 30 – 3"
- Air body 1"**
  - P polypropylene
  - K kynar® PVDF
  - D conduct. acetal
- Air body 2" & 3"**
  - A aluminium
  - S st. steel
- Thread**
  - A NPT
  - B BSP
- Wet body 1"**
  - P polypropylene
  - K kynar® PVDF
  - D conduct. acetal
- 2" & 3"**
  - A aluminium
  - C cast iron
  - S st. steel

Pulsation dampeners – details on request



### Dimensions, service kits, noise level for the diaphragm pump (also for classic models)

Pump size & material	Pump model	replace X with:	Dimensions for aluminium / PP pumps [mm]											Service kits		Noise <sup>1)</sup> dB(A)
			A	B	C	D	F	G	H	K	M <sup>2)</sup>	N <sup>3)</sup>	for air motor	for fluid side		
1/4"	PD0X-xxS-xTX	2,A	204	143	140	35	140	143	165	7,9	140	---	---	637276	637313-XX	59,8
3/8"	PD03P-xxS-xxx		200	214	141	32	145	234	102	7,1	145	---	---	637428	637429-XX	72,7
1/2" metal	PD05P-AxS-xxx		209	280	156	51	152	295	124	7,9	164	---	---	637141	637140-XX	71,1
EXP 1/2" metal	PD05X-xxS-xxx-B	A,R	206	280	156	51	152	296	124	7,9	171	---	---	637428	637427-XX	75
1/2"	66605x-xxx		215	256	156	51	152	288	122	7,9	164	---	---	637141	637140-XX	71,1
EXP 1/2"	PD05P-xxS-xxx-B	K,P	224	255	157	51	152	276	124	7,9	171	---	---	637428	637427-XX	75
1" metal	6661x-xxx-C	0,1,2,A,B,C	217	294	102	32	203	318	159	11,1	203	---	---	637118-C	637119-XX-C	64,5
1"	6661x-xxx-C	3,4	322	351	255	60	204	406	129	11,1	204	---	---	637118-C	637161-XX-C	64,5
EXP 1" metal	PD10x-xxX-xxx	A,C,S	313	294	102	32	206	316	159	10,3	277	---	---	637397	637401-XX	80,6
EXP 1"	PD10P-xxX-xxx	K,P	361	350	255	59	211	377	128	11,1	280	---	---	637397	637396-XX	79,7
1,5-2" metal	6661x-xxx-C	0,1,2,A,B,C	333	467	229	70	292	498	298	12,7	292	---	---	637118-C	637124-XX	77,7
1,5-2"	6661x-xxx-C	3,4	495	541	379	83	292	622	229	15,8	302	---	---	637118-C	637165-XX	77,7
EXP 1,5" metal	PD15x-xxX-xxx	A,C,H,S	378	467	299	70	260	498	229	12,7	277	---	---	637389	637375-XX	82,8
EXP 1,5"	PD15P-xxX-xxx	K,P	472	545	380	88	266	625	221	14,3	280	---	---	637389	637391-XX	81
EXP 2"	PD20P-FXS-xxx	K,P	614	728	360	92	352	811	208	14,3	566	532	---	637369	637373-XX	85 <sup>3)</sup>
2" metal	PD20X-xxx-xxx	A,C,S	502	629	256	48	305	667	230	14,3	548	411	---	637302	637309-XX	85 <sup>3)</sup>
Flap 2" metal	PF20X-xxx-xxx	A,C,S	589	629	256	48	305	667	230	14,3	548	411	---	637302	637310-XX	85 <sup>3)</sup>
3" metal	PD30X-xxx-xxx-B	A,S	599	762	307	60	381	813	258	14,3	586	449	---	637302	637303-XX	83 <sup>3)</sup>

<sup>1)</sup> - At 4,5 bar and 60 cycles per minute.

<sup>2)</sup> - With standard muffler.

<sup>3)</sup> - With optional continuous duty 67263 muffler (or 67323 for PD20P), for high-flow applications, reducing possibility of freezing caused by moisture in air supply.

# Accessories – Special application pumps

## Maximum Temperature

Limits: Pump body / Diaphragm / Ball / Seat

Hytrek	-29 – 66 °C
Nitrile	-12 – 82 °C
Polypropylene	2 – 66 °C
PVDF (Kynar)	-12 – 93 °C
Santoprene	-40 – 107 °C
TFE (Teflon)	4 – 107 °C
Viton	-40 – 177 °C
Groundable Acetal	-12 – 82 °C

## ARO-TRON PUMP CONTROL COMPONENTS

**Intrinsically Safe Diaphragm Failure Detection (DFD) kit P/N 67237:** a simple, cost-effective way to wire your 1", 1.5", 2", 3" pumps for preventive maintenance, to avoid costly production downtime and possibly hazardous material leakage. An infrared light sensor in the diaphragm housing detects fluid entering the air side and sends a failure signal. Order PE (instead of PD) to receive the pump prepared for the kit installation.

**Cycle Sensor/Counter P/N 67350** for EXP pumps: easy to install, cost efficient way to count the cycles performed, for batching or preventive maintenance indication.

### Actuation Valves

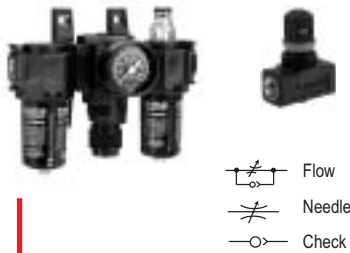
Solenoid actuated 3-way air valve used for on-off pump operation.  
24V-DC and 120V-AC models. MQ3728-X-X for PD10P-X, PD10X-X  
M214SS-X-X for PD20P-X, PD15P-X, PD15X-X MQ3729-X-X for PD20X-X, PD30X-X



## AIR PREPARATION KITS

for diaphragm pumps (outlet size)	Model
1/4", 1/2"	P29122-600
1"	P29221-610
1 1/2"	P29241-610
2", 3"	F25451-110 + 27354-600
1" (3:1)	P29231-610
for piston pumps (air motor size)	Model
2"	C28121-800
2", 3" (NM type)	P29122-600
4 1/2", 6"	C28241-810
8", 10", 12"	28353

Lubricator is not used for NM series piston pumps & diaphragm pumps



Needle valves	Port	Piston motor
104104-N02	1/4"	2" - 3"
104104-N03	3/8"	---
104104-N04	1/2"	4 1/4" - 6"
104104-N06	3/4"	8" - 12"

Flow & check valves on request.

## ARO-STOP VALVES FOR OVERRUN CONTROL

ARO STOP model no.	For motor (piston pump)	For diaphr. pump.
635040	3"	1/2", 1"
23644-400	4 1/4", 6"	1 1/2", 2"
635043	8", 10", 12"	3"



## MUFFLERS FOR PISTON PUMPS AIR MOTORS

Model	Air motor	Air inlet
61880	2"	1/2"
61879	2"	3/8"
66575	3"	1/2"
91790	3 1/2" - 6"	1 1/4"
92460	8"	1 1/4"
66718	10", 12"	bolted



## 1/2" DRUM PUMP SET

for convenient fluid transfer.

**DA005-PPNN-2-A** (nitrile/ polypropylene) – other materials available. 2" bung adapter to install directly on the drum. Optional hose, swivel and nozzle.



PP20A-BAS-AAA

## PORTABLE POWDER PUMPS

for quick, clean, and low cost dry powders (up to 0,8 g/cm<sup>3</sup>) transfers. Used for: fumed silica, carbon black, expanded mica, talcum, silicones, acrylic resins, etc. Patented air induction system. BSP threads as standard.

Aluminium PP20A-BAS-AAA (2"), PP30A-BAS-AAA (3"), St. steel PP20A-BSS-AAA (2"), PP30A-BSS-AAA (3")



PS20A-BAS-AAA

## SCREENED INLET DIAPHRAGM PUMPS

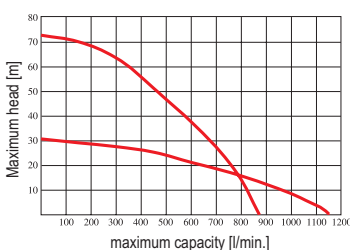
Model	Fluid outlet BSP	Max. l/min.	Solids max. Ø [mm]	Weight [kg]	Air cons. [l/sec]	Air inlet / outlet
PS15A-BAS-PAA	1 1/2"	379	6,4	24	65	1/2"
PS20A-BAS-AAA	2"	644	6,4	30	70	3/4"
PS30B-BAS-AAA-B	3"	1041	9,5	52	80	3/4"

Specification at 620 kPa. Flow charts for 2" & 3" – see specification for pumps with threaded inlets – page 4 & 5.

## ROTARY SUMP PUMPS FOR CONSTRUCTION INDUSTRY

Model	Pump outlet BSP	Weight [kg]	Air cons. [l/sec]	Opening pump will pass through [mm x mm]	Air inlet [mm]	Recomm. inlet hose [mm]
P237A3-EU	2 1/2"	21,8	50	222 x 222	3/4"	19
P35A3-EU	2"	36,0	75	214 x 357	1"	25

Solid cast iron body with speed regulator. Air outlet 1/4", recommended exhaust hose 32 mm. For NPT outlet threads replace "A3" with "A1" in the part number.



P237A3-EU

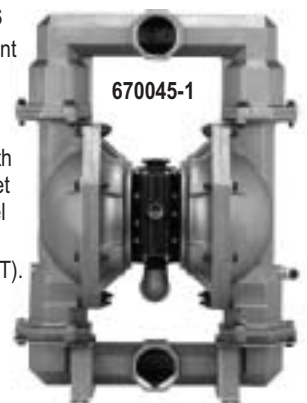
## HIGH PRESSURE DIAPHRAGM PUMPS

Sealless design, uninstalleable air valve, excellent compatibility (including abrasive materials). Typical applications: paint recirculation, filter press, adhesives, inks, resins and other.

**PH10A-BSS-SST** 3:1 double acting pump with electro-polished passivated stainless steel wet end, seats and balls (also with hardened steel seats and balls: PH10A-BSS-HHT). Up to 90 l/min. free flow.



PH10A-BSS-SST



**670045-1** 2:1 ratio single acting diaphragm pump Up to 13,8 bar outlet pressure and up to 600 l/min. free flow. Stainless steel body

# Piston pumps

Ratio	Capacity [l/min.]	Max bar (inlet)	cm <sup>3</sup> / cycle	Stub model	Wet part	Footprint fluid inlet / outlet	Air NPT inlet	Packings	Alternative packings	Air motor	Sound [dBa]	Height [mm]	Weight [kg]	Pumps for 205L barrel with no thread on inlet	Height [mm]	Weight [kg]
1:1	34 <sup>A)</sup>	10,2	308	-----	Steel	--- /3/4"F	1/4"F	1=buna	3=teflon	2"	75	----	----	612041-x	1345	5,9
2:1	16,3 <sup>A)</sup>	10,2	134	NM2202A-11-x31	Steel	1"F / 1/2"F	1/4"F	1=teflon	C= H-PE	2"	80	868	7,8	NM2202A-41-x31	1215	8,9
2:1	16,3 <sup>A)</sup>	10,2	134	NM2202B-11-x31	SS	1"F / 1/2"F	1/4"F	1=teflon	C= H-PE	2"	80	868	7,8	NM2202B-41-x31	1215	8,9
4:1	15,8 <sup>A)</sup>	10,2	134	NM2304A-11-x11	Steel	1½"F/3/4"F	1/4"F	3=teflon	C= H-PE	3"	85	820	14,5	NM2304A-41-x11	1463	20,9
4:1	15,8 <sup>A)</sup>	10,2	134	NM2304B-11-x11	SS	1½"F/3/4"F	1/4"F	3=teflon	C= H-PE	3"	85	820	14,5	NM2304B-41-x11	1463	20,9
9:1	10,5 <sup>B)</sup>	10,2	180	650453-x	Steel	1½"M/3/4"F	1/2"F	7=teflon	9= H-PE	4¼"	80	828	15,8	650453-5 (-8)	1511	22,2
9:1	10,5 <sup>B)</sup>	10,2	180	650408-x-B <sup>1)</sup>	SS	1¼"F/3/4"F	1/2"F	-- =teflon	4= H-PE	4¼"	80	803	15,8	650409-x	1405	20,3
10:1	56,7 <sup>B)</sup>	8,1	980	650866-x6D-B	SS	A 2"M/1¼"F	3/4"F	L=teflon	C= H-PE <sup>2)</sup>	8"	88	1172	46,3	6694X <sup>3)</sup>		
11:1	13,9 <sup>B)</sup>	10,2	238	650483-x43 <sup>1)</sup>	SS	A,D 2"M/1"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	4¼"	81,8	1009	19,5	66300 <sup>3)</sup>		
15:1	56,7 <sup>B)</sup>	6,1	980	650867-x6D-B	SS	A 2"M/1¼"F	3/4"F	L=teflon	C= H-PE <sup>2)</sup>	10"	82	1143	56,8	6694X <sup>3)</sup>		
18:1	2,3 <sup>B)</sup>	10,2	39	NM2318-13-x43	SS	1/2" / 1/4"	1/4"	L=teflon	C= H-PE	3"	85	564	5,7	67310 <sup>3)</sup>		
22:1	7,2 <sup>B)</sup>	10,2	121	650484-x43 <sup>1)</sup>	SS	A,D 2"M/1"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	4¼"	81,8	1009	19,5	66301 <sup>3)</sup>		
23:1	13,9 <sup>B)</sup>	10,2	238	650683-x43 <sup>1)</sup>	SS	A,D 2"M/1"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	6"	84,8	1009	21	66300 <sup>3)</sup>		
23:1	56,7 <sup>B)</sup>	6,1	980	650967-x6D-B	SS	A 2"M/1¼"F	3/4"F	L=teflon	C= H-PE <sup>2)</sup>	12"	88	1143	63,6	6694X <sup>3)</sup>		
28:1	1,4 <sup>B)</sup>	10,2	24	NM2328A-11-x11	SS	1/2" / 1/4"	1/4"	3=teflon	G,S= H-PE	3"	85	552	5,9	66066 <sup>3)</sup>		
30:1	4,9 <sup>B)</sup>	10,2	90	650485-x43 <sup>1)</sup>	SS	A,D 2"M/1"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	4¼"	81,8	1009	19,5	66302 <sup>3)</sup>		
40:1	13,9 <sup>B)</sup>	8,1	238	650883-x4D-B <sup>1)</sup>	SS	A,D 2"M/1¼"F	3/4"F	3=teflon	C= H-PE <sup>2)</sup>	8"	89,8	1106	30,9	66300 <sup>3)</sup>		
45:1	7,2 <sup>B)</sup>	8,1	121	650684-x43 <sup>1)</sup>	SS	A,D 2"M/1"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	6"	84,8	1009	21	66301 <sup>3)</sup>		
45:1	20,4 <sup>B)</sup>	6,9	339	650863-x4D-B	Steel	B 2"F/1"F	3/4"F	3=teflon	C= H-PE <sup>2)</sup>	10"	82	1166	60	66475 <sup>3)</sup>		
60:1	4,9 <sup>B)</sup>	6,9	90	650685-x43 <sup>1)</sup>	SS	A,D 2"M/1¼"F	1/2"F	3=teflon	C= H-PE <sup>2)</sup>	6"	84,8	1009	21	66302 <sup>3)</sup>		
65:1	20,4 <sup>B)</sup>	6,9	339	650963-x4D-B	Steel	B 2"F/1"F	3/4"F	3=teflon	C= H-PE <sup>2)</sup>	12"	88	1168	66,8	66475 <sup>3)</sup>		

## High capacity four ball transfer pumps

2:1	80,6 <sup>B)</sup>	10,3	1344	650439-x4B	SS	2"M/1"F	1/2"F	R=teflon	C= H-PE <sup>2)</sup>	4¼"	81,1	1087	30,8			
3:1	110,8 <sup>B)</sup>	10,3	1846	650640-x4B	SS	2"M/1"F	1/2"F	R=teflon	C= H-PE <sup>2)</sup>	6"	84,8	1087	33,2			
4:1	80,6 <sup>B)</sup>	10,3	1344	650639-x4B	SS	2"M/1¼"F	1/2"F	R=teflon	C= H-PE <sup>2)</sup>	6"	84,8	1087	33,2			
5:1	105,8 <sup>B)</sup>	10,3	1771	650840-x4G-B	SS	2"M/1¼"F	3/4"F	R=teflon	C= H-PE <sup>2)</sup>	8"	89,8	1184	43,5			
7:1	94,5 <sup>B)</sup>	10,3	1269	650839-x4G-B	SS	2"M/1¼"F	3/4"F	R=teflon	C= H-PE <sup>2)</sup>	8"	89,8	1184	42,6			

<sup>1)</sup> - Optional "Ultra" coated stainless steel plunger instead of hard chrome plated (most models: replace last "3" with "B")

<sup>2)</sup> - H-PE = Ultra High Molecular Weight Polyethylene, other packing options available, <sup>3)</sup> - Lower part of the pump

<sup>A)</sup> - At 120 cycle per minute, <sup>B)</sup> - At 60 cycle per minute, M = male pipe thread NPT, F = female pipe thread NPT



All pumps with 6" stroke, except NM2xxx (3") and 650408,650409, 650453 (4"). Recommended cycling for the pumps is up to 10-20 cycles per minute.

# Pumps for extrusion – Accessories

Ratio	Capacity [l/min.] <sup>A</sup>	Max bar (inlet)	cm <sup>3</sup> /cycle	Model	Wet part	Footprint / fluid outlet	Air NPT inlet	Packings	Alternate packings	Air motor	Sound [dBa]	Height [mm]	Weight [kg]	Lower part
12:1	12,4 <sup>A</sup>	10,3	204	650491-x43-B	Steel	A / 1" F	1/2" F	R=teflon	G, P	4 1/4	80	1312	29	66243-
13:1	39,4 <sup>A</sup>	8,1	662	650871-xxE-C	Steel	B / 1 1/2" F	3/4" F	R4=teflon	F4, J3, P4	8	89,8	1330	57	66236-
20:1	39,6 <sup>A</sup>	6,3	662	650875-xxE-C	Steel	B / 1 1/2" F	3/4" F	R4=teflon	F4, J3, P4	10	84,8	1302	65,3	66236-
22:1	3,7 <sup>A</sup>	10,3	31	NM2322E-11-P43 <sup>1)</sup>	Steel	C / 1/2" F	1/4" F	P=teflon	-----	3	85	857	13	6710x
22:1	3,7 <sup>A</sup>	10,3	31	NM2322F-11-P43 <sup>1)</sup>	SS	C / 1/2" F	1/4" F	P=teflon	-----	3	85	857	13	6710x
23:1	6,8 <sup>A</sup>	10,3	114	650492-x43-B	Steel	A / 1" F	1/2" F	R=teflon	G, P	4 1/4	80	1311	28,9	66266-
23:1	12,4 <sup>A</sup>	10,3	204	650691-x43-B	Steel	A / 1" F	1/2" F	R=teflon	G, P	6	83	1311	30,4	66243-
28:1	22,9 <sup>B</sup>	8,1	328	650888-xxD	Steel	B / 1 1/4" F	3/4" F	C4=H-PE	J3=mixed	8	89,8	1304	63,5	67300-
30:1	39,6 <sup>A</sup>	6,3	662	650971-xxE-C	Steel	B / 1 1/2" F	3/4" F	R4=teflon	F4, J3, P4	12	89,8	1302	66,8	66236-
43:1	3,4 <sup>A</sup>	10,3	47	67120-P43 <sup>1)</sup>	Steel	C / 1/2" F	1/2" F	P=teflon	-----	4 1/4	80	1006	20	6710x
43:1	3,4 <sup>A</sup>	10,3	47	67121-P43 <sup>1)</sup>	SS	C / 1/2" F	1/2" F	P=teflon	-----	4 1/4	80	1006	20	6710x
44:1	14,3 <sup>A</sup>	8,1	204	650891-xxD-C	Steel	A / 1" F	3/4" F	R=teflon	G, P	8	89,8	1328	40,4	66243-
44:1	22,9 <sup>A</sup>	6,3	328	650889-xxD	Steel	B / 1 1/4" F	3/4" F	C4=H-PE	J3=mixed	10	84,8	1276	74,8	67300-
46:1	6,4 <sup>A</sup>	10,3	114	650692-x43-B	Steel	A / 1" F	1/2" F	R=teflon	G, P	6	83	1311	30,4	66266-
65:1	22,9 <sup>B</sup>	6,3	328	650989-xxD	Steel	B / 1 1/4" F	3/4" F	C4=H-PE	J3=mixed	12	89,8	1276	74,8	67300-

<sup>1)</sup> - Optional cup style lower packing (instead of grooved), replace last "3" with "8"

<sup>A)</sup> - Capacity at 60 cycle per minute, <sup>B)</sup> - capacity at 75 cycle per minute

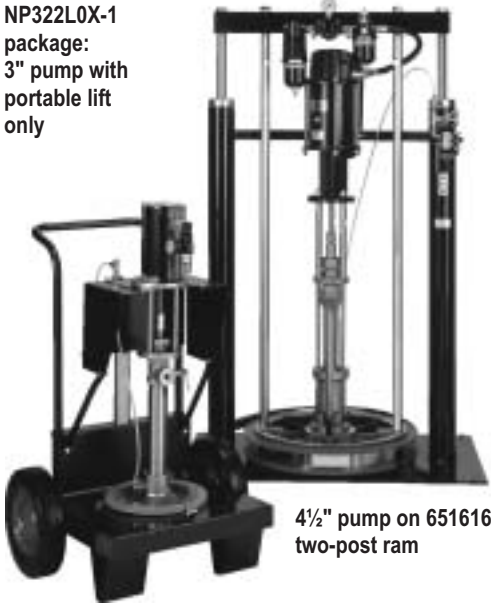
M = Male pipe thread NPT

F = Female pipe thread NPT



6712x-x

**NP322L0X-1 package:**  
3" pump with portable lift only



4 1/2" pump on 651616 two-post ram



650492



650692



650888



650889



650989

## Application by material viscosity

(for guidance only):

- 25.000 - 50.000 cPs – any extrusion pump, even without a ram or properly sized ball valve pump with ram
- ca. 100.000 cPs – any extrusion pump with ram, possibly also high ratio extrusion pump without a ram
- ca. 200.000 cPs – extrusion pumps 20:1 ratio and higher, equipped with ram
- over 500.000 cPs – large displacement (0,66 l) extrusion pumps or high ratio (43:1) extrusion pumps with ram

## Typical applications

(for consistent & trouble-free transfer):

- **Printing / Packaging:** Inks, Adhesives and Coatings
- **Automotive:** Mastics, Adhesives, Sealants
- **Construction:** Caulks, Adhesives & RTV Silicones
- **Assembly:** Adhesives, Caulks, Mastics and Sealants



650871



650875



650971



## Footprint conversion kits:

P/N 67137 to install footprint C pumps, P/N 67136 to install footprint D pumps on footprint A stand or follower plate.



65139

## Floor stands with 3" NPT female inlet and 1/4" NPT vent plug

Floor stand	For pump with footprint
65138	A
65139	B

## Other bulk supply components:

A - 65138 floor mount

B - material hose

with fittings:

628089-2 (60 cm) or

628089-6 (180 cm)

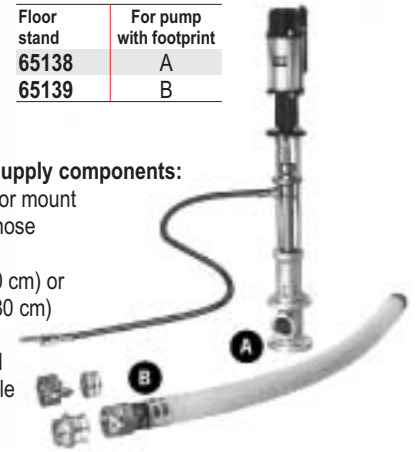
Air supply

hose and ball

valve available

on special

request



All pumps with 6" stroke, except NM2322 (3") and 6712x-x (4"). Recommended cycling for the pumps is up to 10-20 cycles per minute.

# Extrusion packages, lifts, rams & followers

## Typical extrusion packages with 651616 ram, FRL & muffler:

Part number	Pump description	Pump model	Follower
NP431R-02-G43	23:1 steel, chop check	650492-G43-B	66516-1
NP434R-02-G43	12:1 steel, chop check	650491-G43-B	66516-1
NP621R-02-G43	60:1 st. steel, 2-ball	650685-G43	66516-1
NP621R-52-R43	60:1 st. steel, 2-ball	650685-R43	66516-6
NP631R-02-C43	46:1 steel, chop-check	650692-C43-B	66516-1
NP631R-52-R43	46:1 steel, chop-check	650692-R43-B	66516-2
NP634R-02-C43	23:1 steel, chop-check	650691-C43-B	66516-1
NP634R-02-G43	23:1 steel, chop-check	650691-G43-B	66516-1

## 651616 ram (3½" cylinders) and 651612 heavy duty ram (5½" cylinders) with cast aluminium follower plates for 200 l drums

Follower plate P/N	Shape	Coating	Wiper material	Foot print	With 651616 ram	With 651612 ram
66516	Flat plate with double lip wiper	None	Nitrile	A	<b>651616-1</b>	<b>651612-1</b>
66516-1		None	Polyurethane	A	<b>651616-2</b>	651612-2
66516-2		None	EPR	A	<b>651616-3</b>	651612-3
66516-5		Teflon	Nitrile	A	---	---
66516-6		Teflon	Polyurethane	A	<b>651616-52</b>	---
66516-7		Teflon	EPR	A	651616-53	---
66517		None	Nitrile	B	<b>651616-4</b>	651612-4
66517-1	None	Polyurethane	B	<b>651616-5</b>	651612-5	
66517-2	None	EPR	B	<b>651616-6</b>	651612-6	
66517-5	Teflon	Nitrile	B	651616-54	---	
66517-6	Teflon	Polyurethane	B	651616-55	---	
66517-7	Teflon	EPR	B	651616-56	---	
67195-1	Tapered plate with tube type wiper	None	Neoprene	A	651616-14	651612-8
67195-2		None	EPR	A	<b>651616-13</b>	651612-7
67195-3		None	Viton	A	<b>651616-15</b>	651612-9
67195-5		Teflon	Neoprene	A	651616-58	---
67195-6		Teflon	EPR	A	<b>651616-57</b>	---
67195-7		Teflon	Viton	A	<b>651616-59</b>	651612-59
67196-1		None	Nitrile	B	<b>651616-17</b>	<b>651612-11</b>
67196-2	None	EPR	B	<b>651616-16</b>	651612-10	
67196-3	None	Viton	B	651616-18	651612-12	
67196-5	Teflon	Nitrile	B	651616-61	---	
67196-6	Teflon	EPR	B	651616-60	---	
67196-7	Teflon	Viton	B	<b>651616-62</b>	---	

Extrusion packages with **651615-C** single post ram with drum hold down for 20 litre drums. Optional **66713** portability kit available.

Part number	Pump description	Pump model	Follower plate
650542-1	43:1 carbon steel	67120-P43	651840-1
650543-1	43:1 stainless steel	67121-P43	651841-1
NP322R01-1	22:1 carbon steel	NM2322E-11-P43	651840-1
NP322R02-1	22:1 stainless steel	NM2322F-11-P43	651841-1

Extrusion packages with **67075** portable lift with drum hold down for 20 litre drums.

Part number	Pump description	Pump	Follower plate
650540-1	43:1 carbon steel	67120-P43	651840-1
650541-1	43:1 stainless steel	67121-P43	651841-1
NP322L01-1	22:1 carbon steel	NM2322E-11-P43	651840-1
NP322L02-1	22:1 stainless steel	NM2322F-11-P43	651841-1

## Follower plates for 20 litre drums

Model	Material	Coating	Remarks	Wipers	Foot print
66731	Steel	Electroless Nickel	Double Lip	Nitrile	C
66731-1	Steel		Double Lip	Polyurethane	C
66731-2	Steel		Double Lip	EPR	C
66732	Steel		Double Lip	Nitrile	B
66732-1	Steel		Double Lip	Polyurethane	B
66732-2	Steel	Double Lip	EPR	B	
66469	Steel	None	Single Lip	Nitrile	A
651840-2	Steel		295 mm	Nitrile	C
651840-3	Steel		312 mm		C
651840-1	Steel		290 mm	Polyethylene/ Urethane	C
651841-1	St. steel		290 mm		C
651842-1	St. steel	290 mm		D	



651616



651612



6651x-x



6719x-x



640169 lift for 4¼" and 6" pumps. Shall be used with either follower plate or drum cover.



Single post ram - for extrusion of up to 500.000 cPs material. 360° rotation allows to serve three 200 l containers.

Model	For airmotor size	Contains mounting bracket
651614-1	4¼" - 6" <sup>1)</sup>	67067
651614-2	8" - 12"	67068

<sup>1)</sup> - Use 651614-2 for high-volume pump models 650437-X, 650438-X, 650637-X, 650638-X

**65116 air assist kit** (not shown) - to supply air under follower to bring it up in less time.



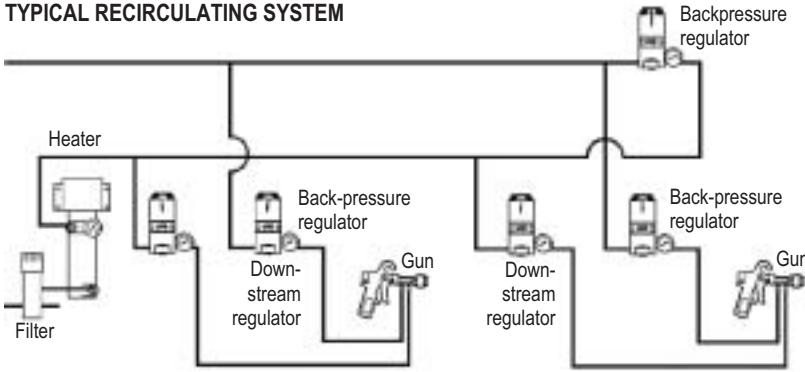
66248

Cast iron follower plates, with single lips wiper, additionally available for 651614 ram and 640169 lift, for 200 litre drums..

Follower plate	Shape	Coating	Wiper material	Foot print
66248	Flat	None	Nitrile	A
66248-1	Flat	None	Polyethylene	A

# Accessories for piston pumps

## TYPICAL RECIRCULATING SYSTEM



## MATERIAL FLOW REGULATORS

High pressure	Regulated pressure [bar]	Max. inlet [bar]	Gauge [bar]
Downstream 3/8", up to 11,4 l/min.			
651780-AxA-B	28-86	207	<sup>1)</sup>
651780-AxB-B	69-207	414	<sup>1)</sup>
Downstream 3/8", up to 22,7 l/min.			
651780-BxA-B	28-86	207	<sup>1)</sup>
651780-BxB-B	69-207	414	<sup>1)</sup>
Downstream 3/4", up to 75,7 l/min. <sup>2)</sup>			
651780-CxB-B	52 - 172	414	N/A
651780-C1C-B	138 - 345	414	N/A
Downstream 3/8", remote, up to 22,7 l/min.			
651780-BxR-B	28 - 345	414	N/A
Downstream 3/4", remote, up to 75,7 l/min. <sup>2)</sup>			
651780-CxR-B	52 - 345	414	N/A
Backpressure 3/8", up to 22,7 l/min.			
651781-BxB-B	7 - 207	207	<sup>1)</sup>
Backpressure 3/4", up to 75,7 l/min. <sup>2)</sup>			
651781-CxB-B	7 - 207	207	N/A

x = 1 - C/S housing + T/C seat/stem,  
3 - S/S housing + T/C seat/stem.

<sup>1)</sup> - Gauges for 3/8" regulators (gauge adapter 92968 required)

Pressure	Brass	Stainless Steel
210 bar	935051	935061
350 bar	935071	95095

<sup>2)</sup> - Flow rates tested at 55 cPs



Remote High pressure



High pressure



Remote Low pressure



Low pressure

Option "4" max. inlet pressure: 35,5 bar for downstream and 13,8 bar for backpressure regulators.

Option "1" not available for 70 l/min. flow.



651103



651105-EU



651104-3



## Wet sol "Plus" – lubricant

Model	Quantity
66333-B	0,85 l
66334-B	3,8 l

Designed to prolong packing life by keeping the piston rod and packings wetted. Also reduces the possibility of material hardening on the piston rod.

## PNEUMATIC AGITATORS

Agitator	Motor used	Power [kW]	Speed [rpm]	Mounting	Shaft [mm]	Propeller
651100	MRV003AL	0,25	500-10000	Hub	305	1 x RH
651104-3	MRV009C	0,66	300-3000	Flange	267	1 x RH
651103	MRV009C	0,66	300-3000	Drum side	813	2 x RH
651104-1	MRV009C	0,66	300-3000	Flange	813	1x RH, 1x LH
651105-EU	7803AKC	0,37	100-500	Handheld	590	see picture

Propeller and shaft material is always stainless steel.

## 651747-2-B Material Heater: 240V, 2000W

- adjustable +/-2°C
- up to 56 l/h flow
- up to 38°C temp.rise)
- max. 345 bar
- 1/2" (F) inlet/outlet.



651412



651420



651418

93944

Filter model	Mesh [µm]	Replacement filter screens	Filter inlets	Filter outlets
Carbon steel - max. 414 bar. Side inlet/outlet.				
651412 <sup>3)</sup>	200	91192-2	2x 1/4"F	3x 1/4"F
651412-8	149	91192-3	2x 1/4"F	3x 1/4"F
Carbon steel (electro-nickel plated) - max. 414 bar				
651420-40 <sup>4)</sup>	375	93944-40	2x 1/2"F	1x 1/2"F
651420-70 <sup>4)</sup>	200	93944-70	2x 1/2"F	1x 1/2"F
651420-100 <sup>4)</sup>	149	93944-100	2x 1/2"F	1x 1/2"F
651418-40-B	375	93945-40	2x 1"F	3x 3/8"F
651418-70-B	200	93945-70	2x 1"F	3x 3/8"F
651418-100-B	149	93945-100	2x 1"F	3x 3/8"F

<sup>3)</sup> - Outlet swivel union can also be installed at the bottom.

<sup>4)</sup> - St. steel version 651422-XX also available.

Pump stabilizing brackets for 651616 ram:

**Part no. 66353-1**

for 8" - 12" piston

air motor

**Part no. 66354-1**

for 4 1/4" - 6" piston air motor.

**66354-1**

**Part no. 67133** Drum hold-down brackets –

required for 651616 series

rams. Kit includes two

brackets, clamp screws,

nuts.

**67133**

**665019 PULSATION DAMPENER** – air charged, large capacity to minimise pressure surge. Removable cap for easy cleaning. Max. 345 bar, for 4 1/2" - 8" piston pumps.

**ARO STOP valves, needle valves & air preparation modules & piston motor mufflers: see page 6**



67327 ARO low level cut-off – fits all 2-post rams

# Spraying, lubrication & fuel pumps



## SWIVELS & CHECK VALVES

	Model	Inlet - Outlet - Material	Bar
Check valves	65845	3/4" M/3/4" M - steel	552
	66559	1" M/1" M - steel	552
Straight swivels	636075	1/8"-27 NPT(F) - 1/8"-27 NPT(M)	552
	636085	3/8"-17 NPT(F) - 3/8"-17 NPT(M)	552
	635117	1/2"(F) - 1/2"(M)	552
	635108	3/4"(F) - 3/4"(M)	69
"Z" swivels	636077	1/8"-27 NPT(F) - 1/8"-27 NPT(M)	552
	636088	3/8"-17 NPT(F) - 3/8"-17 NPT(M)	552
	635106	3/8" - 1/2"	552
	636086-B	1/4"-18 NPT (F) - 1/4"-18 NPT(M)	345

M = NPT male thread, F = NPT female thread

## Also: Siphon Tubes, Mounting Posts & Carts



Manual Spray & Extrusion Guns

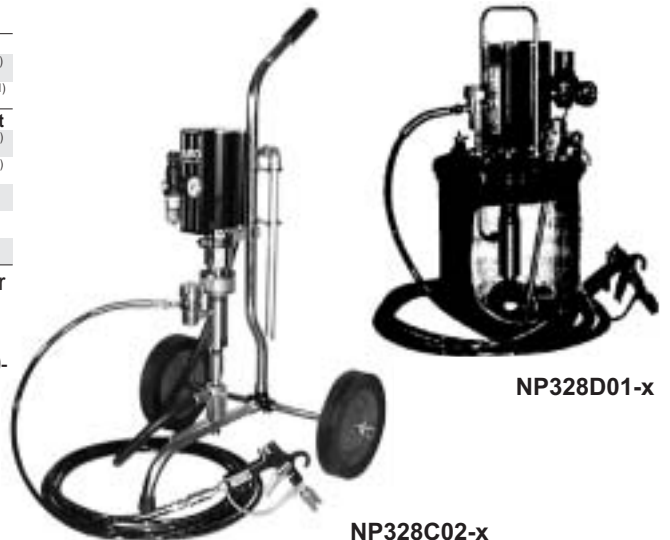
Automatic Spray & Extrusion Guns

Low Profile Compact Dispensing Valves

## STAINLESS STEEL PACKAGES FOR AIRLESS AND AIR ASSISTED COATING

Ratio & packings	Litre / cycle	Bare pump	Trolley mount	Wall mount
18:1 UHMW-PE	0,039	NM2318B-13-C43	NP318C01-1 <sup>1)</sup>	NP318W01-1 <sup>1)</sup>
18:1 min.fill.teflon	0,039	NM2318B-13-L43	NP318C01-2 <sup>1)</sup>	NP318W01-2 <sup>1)</sup>
Ratio & packings	Litre / cycle	Bare pump	Trolley mount	5gal barrel mount
28:1 PE-leather	0,024	NM2328A-11-G11	NP328C0x-1 <sup>2)</sup>	NP328D01-1 <sup>3)</sup>
28:1 teflon-PE	0,024	NM2328A-11-S11	NP328C0x-2 <sup>2)</sup>	NP328D01-2 <sup>3)</sup>
30:1 UHMW-PE	0,09	650485-P43	650554 <sup>4)</sup>	-----
45:1 UHMW-PE	0,12	650684-P43	650556 <sup>4)</sup>	-----
60:1 UHMW-PE	0,09	650685-P43	650556-1 <sup>4)</sup>	-----

- <sup>1)</sup> - NP318x01-x includes: pump, bracket, two air pressure regulators, material filter with hose. Trolley mount models include also the cart.
- <sup>2)</sup> - NP328C01-x includes: cart, pump, 129121-400 air filter-regulator, 651412 material filter. NP328C02-x additionally includes: 628042-25 hose 7,5m, 65030-5-B swivel-filter, 651333 airless spray gun, TC-1550 nozzle
- <sup>3)</sup> - NP328D01-1/2 includes: pump, 65722 bucket, 65706 cover, R27221-100 air regulator, 628042-25 hose 7,5m, 65030-5-B swivel/filter, 651333 airless spray gun, TC-1550 spray nozzle. NP328D02-1/2 also 650252 agitator.
- <sup>4)</sup> - Includes: pump, 67138 heavy-duty cart, R27241-100 air regulator, 91790 muffler, 622606-5 suction hose, 651422-70 material filter-dampener



NP328D01-x

NP328C02-x



## LUBRICATION PUMPS (initial part of P/N in the first column)

Oil pump	Stub	60 l	200 l <sup>5)</sup>	1000 l	Ratio	Motor	Max.flow	Inlet / outlet
LM2203A...	-12-C	-32-C	-42-C	-52-C	3:1	2"	22 l/min.	3/4" / 1/2"
LM2305A...	-12-B	-32-B	-42-B	-52-B	5:1	3"	22 l/min.	1 1/2" / 1/2"
heavy service	662420-C	662409	662410-C	---	9:1	4 1/4"	50 l/min.	-(2") / 3/8"
Grease pump	16 kg	27 kg	54 kg	180 kg	Ratio	Motor	Max.flow	Inlet / outlet
LM2250E...	-22-B	-62-B	-32-B	-42-B	50:1	2"	0,9kg/min	-- / 3/8"
LM2350E...	-22-B	-62-B	-32-B	-42-B	50:1	3"	1,8kg/min	-- / 3/8"
for heavy	---	---	662402	662400-C	50:1	4 1/4"	2,7kg/min	-- / 1/2"
greases	---	---	662605	662608	100:1	6"	0,8kg/min	-- / 1/2"

<sup>5)</sup> - With 2" bung adapter 67145-4-B. 67088-4 weather tight kit available.

Flow handles for oil pumps: 635399 standard, 635367 metered preset handle, 635390-33 digital with rigid nozzle, 635390-3 digital with flexible nozzle

Optional accessories for 180 kg grease pumps: 94422 drum cover, 636111 lubrication gun, 636103 booster handle, 640015-1 follower plate.



## UL CERTIFIED DIAPHRAGM PUMPS FOR FUEL TRANSFER

	Inlet / outlet	Max. capacity at 3,4 bar [l/min]	Air inlet	Weight [kg]
650717-C	1"	110	1/4"	8,6
650718-C	1 1/2"	284	1/2"	23
650719-C	2"	397	1/2"	24

All pumps with aluminium housing, acetal balls, Kynar® (PVDF) seats, and Viton® diaphragms.

To meet UL79 standard, if line pressure between the pump and dispensing point exceeds 3,4 bar due to thermal expansion, line compression, backfeed, or gravity, the pressure relief valve on the pump opens and bleeds off excess pressure. It must be plumbed to return the bleed-off fuel to the storage container.



650717-C

650718-C

650719-C

Also : 1/2" & 1" diaphragm pumps for 1:1 antifreeze/water mixing.

# Diaphragm & piston pumps applications



EXP pump has replaced competitive model to reduce air consumption



ARO 1/2" diaphragm pumps supply waste water treatment chemicals.



ARO 1/2" diaphragm pump used for flexo ink circulation.



ARO diaphragm pumps transfer bases for paint formulation.



Bank of PD20A-BSS-STT used for solvent manufacturing.



ARO diaphragm pumps are used to move a variety of acids.



ARO diaphragm pumps used in chemical laboratory.



ARO diaphragm pumps used in chemical laboratory.



Piston and diaphragm pumps used for two-component paint machines.



Extrusion pumps used for cold set inks in printing.



Extrusion pumps & accessories used for thick sheet fed inks.



Special extrusion pump packages for sheet fed inks used for high volume consumption.

## Also from ARO:

### Air cylinders



Electromagnetic valves, needle valves couplings, etc.



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